

Landbird Monitoring Protocol for Klamath Network Parks

Standard Operating Procedure (SOP) #5: Conducting Variable Circular Plot Point Count Surveys

Version 1.0

Revision History Log:

Previous Version	Revision Date	Author	Changes Made	Reason for Change	New Version

This SOP gives step-by-step instructions for surveying birds with unlimited-radius, 5-minute point counts using distance sampling, including completion of the Point Count Data Form, which is provided at the end of the SOP. Procedures for locating point count stations are described in SOP #4: Locating and Marking Field Sites. Point count procedures are based on standard point count protocols (Alexander et al. 2004, Fancy 1997, Peitz et al. 2002, Ralph et al. 1993).

Introduction

This survey utilizes 5-minute, unlimited-radius point counts with distance sampling. Recording the distance to each bird detected allows estimation of detection probability, an essential analytical component of this study. Data collected using the standardized Variable Circular Plot (VCP) survey methodology can be directly compared with those collected using the traditional fixed radius plot. Partitioning the data into birds detected within each minute of the 5-minute point count facilitates comparison with results from the continent-wide Breeding Bird Survey (BBS), which utilizes 3-minute point counts and allows for additional analyses of detection probabilities using mark-recapture occupancy models.

Conditions of the Survey

VCP point count surveys are to start during the 15 minutes following local sunrise and be conducted during the following three to four hours. Birds should not be surveyed when rain or wind interfere with the audibility of bird sounds, when fog or rain interferes with visibility, or when cold weather shuts down bird song activity.

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Conducting the Point Count Survey

The Project Lead and/or technicians should approach the survey point with as little disturbance to the birds as possible. When you arrive at a point, make yourself comfortable by taking off your backpack and situating binoculars so that they are in a comfortable and accessible position around your neck. However, remain as quiet as possible; if you need to repack your things or add or remove clothing, try to postpone doing so until after the point count. Take a minute and use your rangefinder to determine several reference points (the observer will not use the rangefinder during the count). No attracting devices or techniques (e.g., “phishing”) should be used during a point count survey. During the count, be sure to periodically rotate your body so that you do not spend the entire point count facing the same direction; you must do your best to track birds around you in all directions. Place the Point Count Data Form on the top of your clipboard and complete the top portion of the form (if it was not completed at a previous station) as follows:

Page: The page number of current page and the total pages for the survey route.

State: The two letter abbreviation for the state where the field site is located.

Project/Region: The code for the project, NPLTM.

Site Code: The code of the survey route.

Site Name: The name of the survey route.

Month-Day-Year: The date of the survey using two numbers for month and day and four numbers for year.

Observer Initials: The first, middle, and last name initials of the observer.

Temp. (Temperature): The temperature at the beginning of the survey and/or at the top of each new data form page, recorded in degrees Celsius.

Cloud Cover %: Record the estimated percent of cloud cover at the beginning of the survey and/or at the top of each new data form page.

Ppt (Precipitation): Record the type of precipitation at the beginning of the survey and at the top of each new data form page; N = None, F = Fog, M = Mist, D = Drizzle, R = Rain.

Wind: Record the wind at the beginning of the survey and at the top of each new data form page using the Beaufort Wind Scale class. 0 = calm, smoke rises vertically and the sea is mirror smooth. 1 = light air, smoke moves slightly with breeze and shows direction of wind. 2 = you can feel wind on your face and hear the leaves start to rustle. 3 = gentle breeze, small branches start to sway, wind

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extends a light flag. 4 = moderate breeze, loose dust or sand on the ground will move and larger branches will sway. >4 = Do not survey, too much wind.

When you are ready, set your stop watch and begin the count. During the 5-minute point count, record data as follows:

Station: The point number of the station where the count was conducted.

N: The noise experienced at the beginning of the count; 1 = none, 2 = moderate, 3 = too much noise, cannot hear birds >15 m away from point (do not complete the point count if there is too much noise). If the cause of the noise is expected to be a continuous problem at this point over time, then you will need to move the station away from the source of the noise following the methods described in SOP #4: Locating and Marking Field Sites.

Time: The time (using a 24-hour clock) recorded at the beginning of the count to denote time blocks and at the end of the count. When recording the birds within the count period, separate detections made during each minute of a 5-minute count. When doing so, do not record individuals twice (i.e., in each time block), only record individuals in a subsequent minute of the count if they were not detected previously during that count.

Species Code: The standard four letter species code as found in the North American Bird Banding Manual, <http://www.pwrc.usgs.gov/bbl/manual/sect5.htm> (Gustafson et al. 1997). Observers should carry and reference the Master Species List (SOP #12: Data Entry) for unknown or uncommon species. Codes for animals other than birds should also be recorded. The most common species are included in the Master Species List for your reference.

If the observer is unable to identify an individual during a count, he/she may spend no more than 10 minutes attempting to track the bird after completing the 5-minute count. Flocks may also be followed for no more than 10 minutes to determine composition and size. Unidentified birds should be documented as such on the Point Count Data Form, with the appropriate species code that can also be found in the Master Species List (e.g., UNKN = unknown species, UNAC = unknown Accipiter species, UYRW = Unknown Yellow-rumped Warbler, etc.).

Species Name Abr: A short clear abbreviation for the bird species common name should be recorded if the surveyor is not absolutely certain of the species code. Species name should always be recorded for uncommon birds and non-bird species.

Distance: When an individual bird is detected, its distance should be quickly estimated. A bird's distance from the station is determined by visualizing a plumb bob dropped from the bird's location; the distance from the observer to where the plumb bob would touch the ground is the distance recorded. The distance

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recorded for each individual is the distance to where the bird was first detected, regardless of its movements during the count period. Estimate distances to the nearest meter; do not round distances to the nearest 5 or 10 m interval or estimate distances within bands.

Individuals are written down in the order they are observed. The number of individuals is recorded when more than one of a species is detected at the same moment at the same location. In this case, fill in the appropriate Distance, Detection Type, and Location in the first available boxes, then on the same line record an “x” (times) and the number of individuals (e.g., x48 = 48 individuals of that species). If a bird flushes when the observer arrives at the point, the bird should be included according to its take-off place. If a bird is flushed within 50 m of a station’s center as an observer leaves, it should be counted only if no other individual of that species was seen during the count period.

DT (Detection Type): The first behavioral cue that alerted the observer to the presence of the species; S = Song, C = Call, V = Visual, W = Wing (e.g., Mourning Dove or hummingbird wing whir), D = Drumming, F = Fly over.

Here, we provide guidelines for differentiating songs from calls. Most songbirds have a typical song that is generally not confused with typical call notes. An example is the Black-headed Grosbeak, whose song can be described as a high, drunken, rolling warble and whose call is a high, sharp *pik* note. Groups of birds that we will often encounter in the field that have less well-defined songs and calls include hawks and falcons, grouse and quail, owls, woodpeckers, flycatchers, jays and crows, and chickadees (particularly Chestnut-backed Chickadee). The general rule for distinguishing between songs and calls is to defer to vocalization descriptions provided in *The Sibley Field Guide to Birds of Western North America*, with a few clarifications, as described below.

- Hawks and falcons: Never sing. Regard all vocalizations as calls.
- Grouse and quail: Low hoot of Sooty Grouse and drumming of Ruffed Grouse classified as song, all other vocalizations classified as calls. *Quark* of Mountain Quail and *Chi go* of California Quail classed as songs, all other vocalizations are calls.
- Owls: Songs are defined as the typical series of hoots a male would give when defending territory. This does not include any of the female and juvenile calls. The Northern-pygmy Owl’s “submarine sonar” vocalizations and Flamulated Owl’s *poop* are included as songs.
- Woodpeckers: Songs are limited to rattles for most species. Calls are defined as all contact calls, drumming, and any other vocalizations. For Northern Flicker and Pileated Woodpecker, the similar sounding *wuk wuk wuk wuk wuk* vocalizations are classified as songs; all other vocalizations are calls.
- Flycatchers: Well-defined by Sibley. Typical two and three note vocalizations from *Empidonax* flycatchers are classified as songs.

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- Jays and crows: Never sing. Regard all vocalizations as calls.
- Chickadees: Song includes Mountain Chickadee's *cheeseburger*, and Black-capped Chickadee's *fee bee fee beeyee*. All other vocalizations for these two species should be classified as calls. Chestnut-backed Chickadee is more ambiguous and may not have a structured song at all; regard all vocalizations as calls.

Loc (Location): If a point count station is near a riparian area, record which detections are located in the riparian habitat with an "R." The portion of a station that is considered riparian for associating detections is determined by the presence of water or the presence of at least two riparian-associated plant species (e.g., willow, alder, etc.). As with determining distance, if the plum bob is dropped from a bird detected at the top of a conifer and falls within a portion of VCP considered to be riparian, the detection is noted as such.

Prev (Previously Detected Individuals): Individual birds that are detected during a survey, and that have been detected at a previous station, are noted with a P.

Breed (Breeding Status): Any breeding evidence observed during the count should be recorded. N = current year's Nest found with eggs or young, in the process of being built, or already depredated or abandoned; M = adult seen gathering or carrying nesting Material to a likely nest site in the study area; F = adult seen carrying Food or Fecal sac to or from a likely nest site in the study area; D = Distraction display or injury feigning by an adult bird; L = a young bird incapable of sustained flight (a "Local") in the study area or very young (stub-tailed) fledglings being fed by parents in the study area; C = Copulation or Courtship observed of a species within its breeding range; T = other Territorial behavior observed; S = territorial Song or drumming heard.

Notes: Any notes regarding unidentified birds, birds observed between points, or other useful information. Be sure and write a note explaining any unexpected or rare species detected. When applicable, notes and species code should be labeled with a number so that the note is entered in the database with the appropriate record.

References

Alexander, J. D., C. J. Ralph, and P. Herrera. 2004. Klamath Demographic Monitoring Network variable circular plot point count protocol. Klamath Bird Observatory, Ashland, Oregon.

Fancy, S. G. 1997. A new approach for analyzing bird densities from variable circular-plot counts. *Pacific Science* **51**:107-114.

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Peitz, D. G., S. G. Fancy, L. P. Thomas, and B. Witcher. 2002. Bird monitoring protocol for Agate Fossil Beds National Monument, Nebraska and Tallgrass Prairie National Preserve, Kansas. Version 1.0. Prairie Cluster Prototype Monitoring Program, National Park Service, U.S. Department of the Interior. Online. (<http://science.nature.nps.gov/im/monitor/>). Accessed 29 October 2007.

Ralph, C. J., G. R. Geupel, P. Pyle, T. E. Martin, and D. F. DeSante. 1993. Handbook of field methods for monitoring landbirds. USDA Forest Service, General Technical Report, PSW-GTR-144.

